

第1図

合金a1	低R合金	23.6Nd–6Pr–0.3Dy–1.1B–0.05Cu–0.2Al–bal.Fe(wt. %)
合金a2	Zr入り低R合金	23.6Nd–6Pr–0.3Dy–1.1B–0.05Cu–0.2Al–0.32Zr–bal.Fe(wt. %)
合金a3	Zr入り低R合金	15.7Nd–6Pr–8.1Dy–1.1B–0.05Cu–0.2Al–0.15Zr–bal.Fe(wt. %)
合金a4	Zr入り低R合金	23.9Nd–6Pr–1.1B–0.05Cu–0.2Al–0.15Zr–bal.Fe(wt. %)
合金a5	Zr入り低R合金(高Al)	23.6Nd–6Pr–0.3Dy–1.1B–0.05Cu–0.42Al–0.12Zr–bal.Fe(wt. %)
合金a6	Zr入り低R合金(Al無)	23.6Nd–6Pr–0.3Dy–1.1B–0.05Cu–0.12Zr–bal.Fe(wt. %)
合金a7	Zr入り低R合金	27.9Nd–0.1Dy–1.1B–0.03Cu–0.05Al–0.08Zr–bal.Fe(wt. %)
合金a8	Zr入り低R合金	23.7Nd–6Pr–0.2Dy–1.6B–0.3Cu–0.25Al–0.3Zr–bal.Fe(wt. %)
合金b1	高R合金(B無)	40.6Nd–0.05Cu–5Co–0.2Al–bal.Fe(wt. %)
合金b2	Zr入り高R合金(B有)	40.6Nd–0.5B–0.05Cu–5Co–0.2Al–3.1Zr–bal.Fe(wt. %)
合金b3	高R合金(B, Al無)	40.6Nd–0.05Cu–5Co–bal.Fe(wt. %)
合金b4	高R合金(B無)	35.1Nd–0.03Cu–2Co–0.05Al–bal.Fe(wt. %)
合金b5	高R合金(B無)	40.6Nd–0.3Cu–20Co–0.25Al–bal.Fe(wt. %)

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第2図

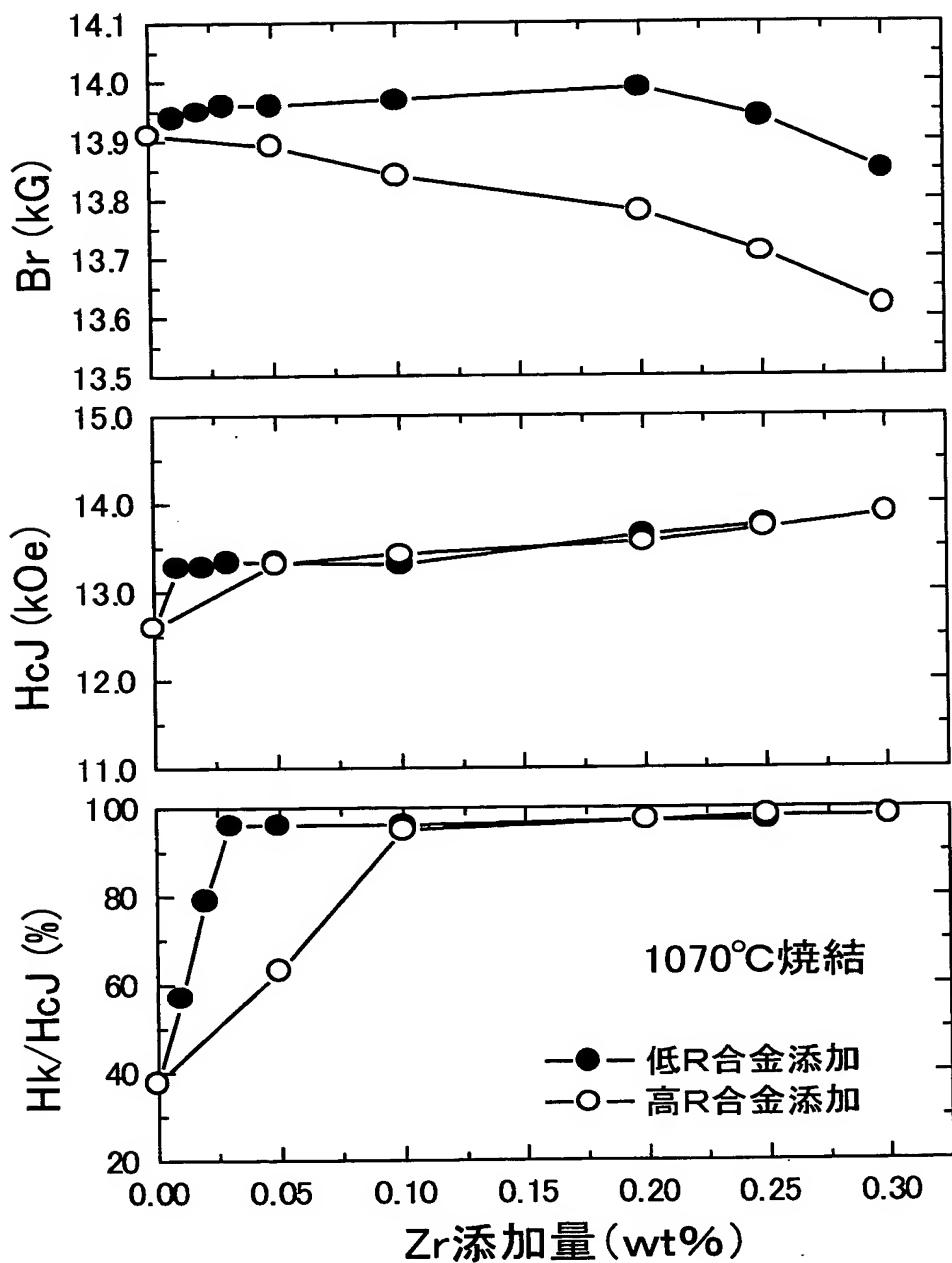
No.	最終組成 (wt. %)	酸素量 (ppm)	低R合金	高R合金	焼結温度 (kG)	Br	HcJ (kOe)	Hk/HcJ (%)	Br+0.1x HcJ	CV値
1	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co	12.0	合金a1	合金b1		13.91	12.59	38	15.17	-
2	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr	1290				13.94	13.28	57	15.27	68
3	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.02Zr	1160				13.95	13.29	79	15.28	70
4	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr	1360	合金a1+ 合金a2	合金b1		13.96	13.34	96	15.29	66
5	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	1090				13.96	13.33	96	15.29	72
6	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	1190				13.97	13.31	96	15.30	78
7	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	1110				13.99	13.64	97	15.35	101
8	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.25Zr	1320				13.94	13.75	97	15.32	99
9	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.30Zr	1240			1070°C	13.85	13.85	98	15.24	110
10	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	1350				13.89	13.32	63	15.22	159
11	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	1400	合金a1+ 合金b2	合金b1+		13.84	13.43	95	15.18	214
12	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	1170	合金a1			13.78	13.56	97	15.14	257
13	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.25Zr	1220				13.71	13.71	98	15.08	281
14	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.30Zr	1310				13.62	13.88	98	15.01	275
15	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co	1888	合金a1	合金b1		13.89	11.44	54	15.03	-
16	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	1820	合金a1+ 合金a2	合金b1		13.97	12.33	97	15.20	81
17	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	1920				13.98	12.58	97	15.24	98
18	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.25Zr	1870				13.93	12.81	98	15.21	97
19	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	1800	合金a1	合金b1+ 合金b2		13.81	12.39	96	15.05	223
20	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	1960				13.75	12.55	97	15.01	263

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第3回

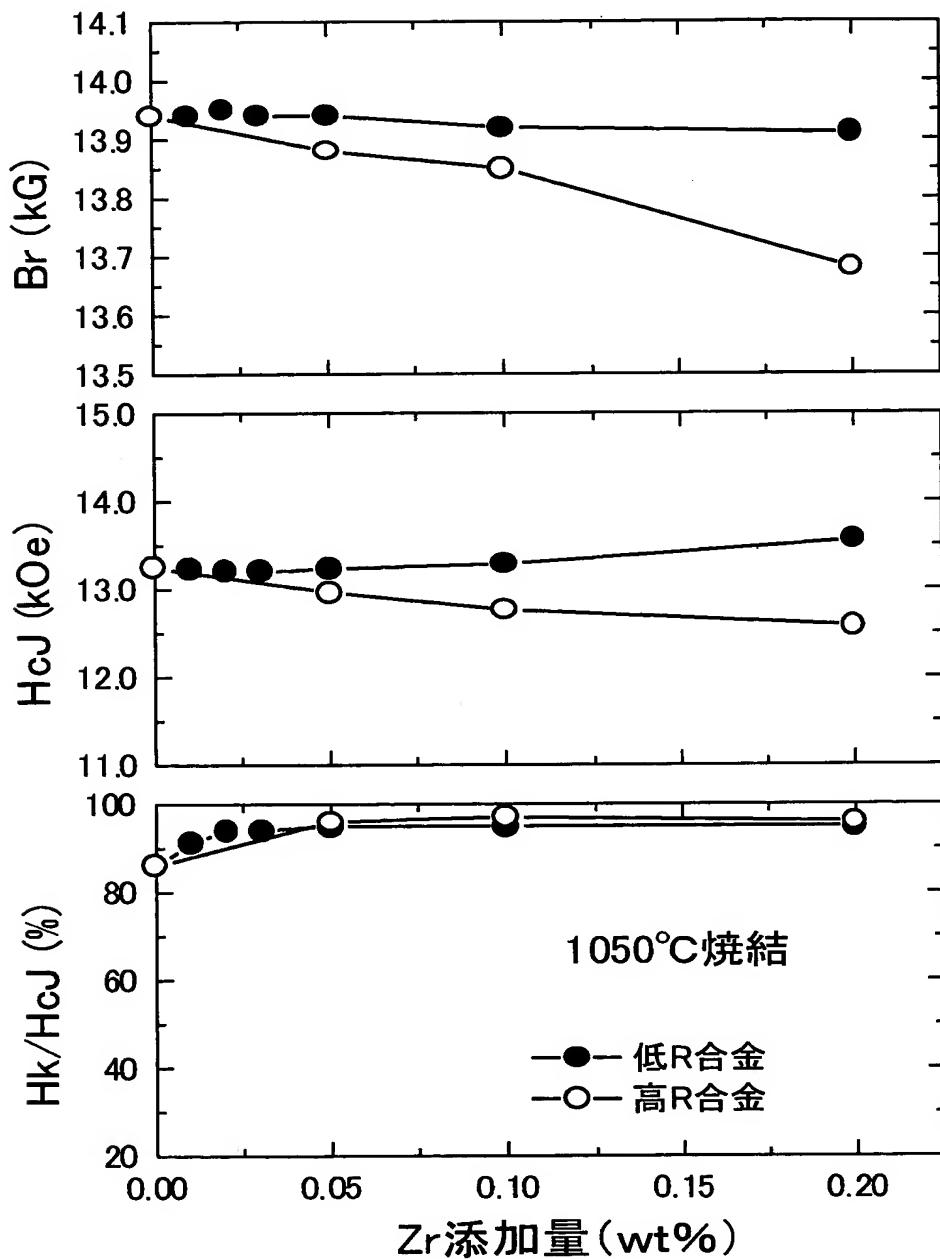
No.	最終組成(wt. %)	酸素量 (ppm)	低R合金	高R合金	焼結温度	Br (kG)	HcJ (kOe)	Hk/HcJ (%)	Br+0.1 × HcJ
21	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co	1210	合金a1	合金b1		13.94	13.24	86	15.26
22	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.01Zr	1260				13.94	13.23	91	15.26
23	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.02Zr	1180				13.95	13.19	94	15.27
24	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.03Zr	1360	合金a1 + 合金a2	合金b1		13.94	13.19	94	15.26
25	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	1110				13.94	13.23	95	15.26
26	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	1170				13.94	13.28	95	15.27
27	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	1200			1050°C	13.91	13.55	95	15.27
28	Fe-25.0Nd-5.4Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	1300				13.88	12.96	96	15.18
29	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.10Zr	1370	合金a1	合金b1 + 合金b2		13.85	12.76	97	15.13
30	Fe-24.8Nd-5.5Pr-0.3Dy-1B-0.05Cu-0.2Al-0.5Co-0.20Zr	1250				13.68	12.58	98	14.94
31	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.01Al-0.5Co-0.10Zr	1220				14.15	11.20	95	15.27
32	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.03Al-0.5Co-0.10Zr	1310				14.14	12.49	96	15.39
33	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.05Al-0.5Co-0.10Zr	1140	合金a5 + 合金a6	合金b1 + 合金b3		14.13	12.60	95	15.39
34	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.3Al-0.5Co-0.10Zr	1180				13.87	13.27	97	15.20
35	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.4Al-0.5Co-0.10Zr	1230				13.61	13.00	96	14.91

第4図



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第5図

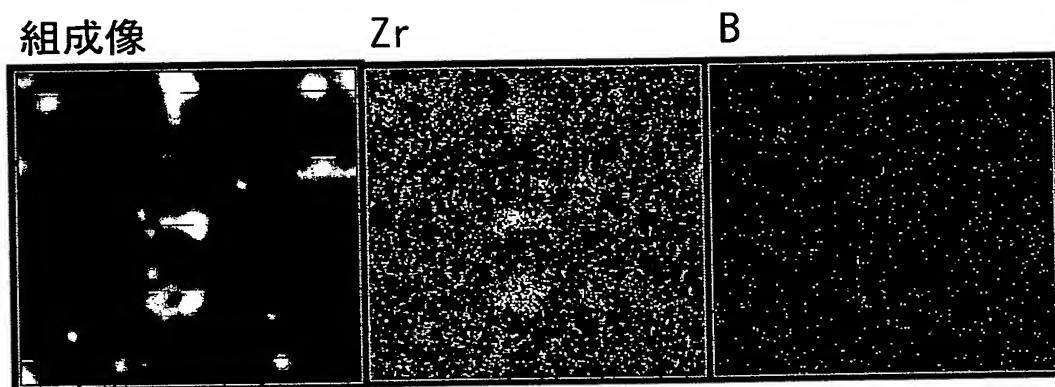


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第 6 図

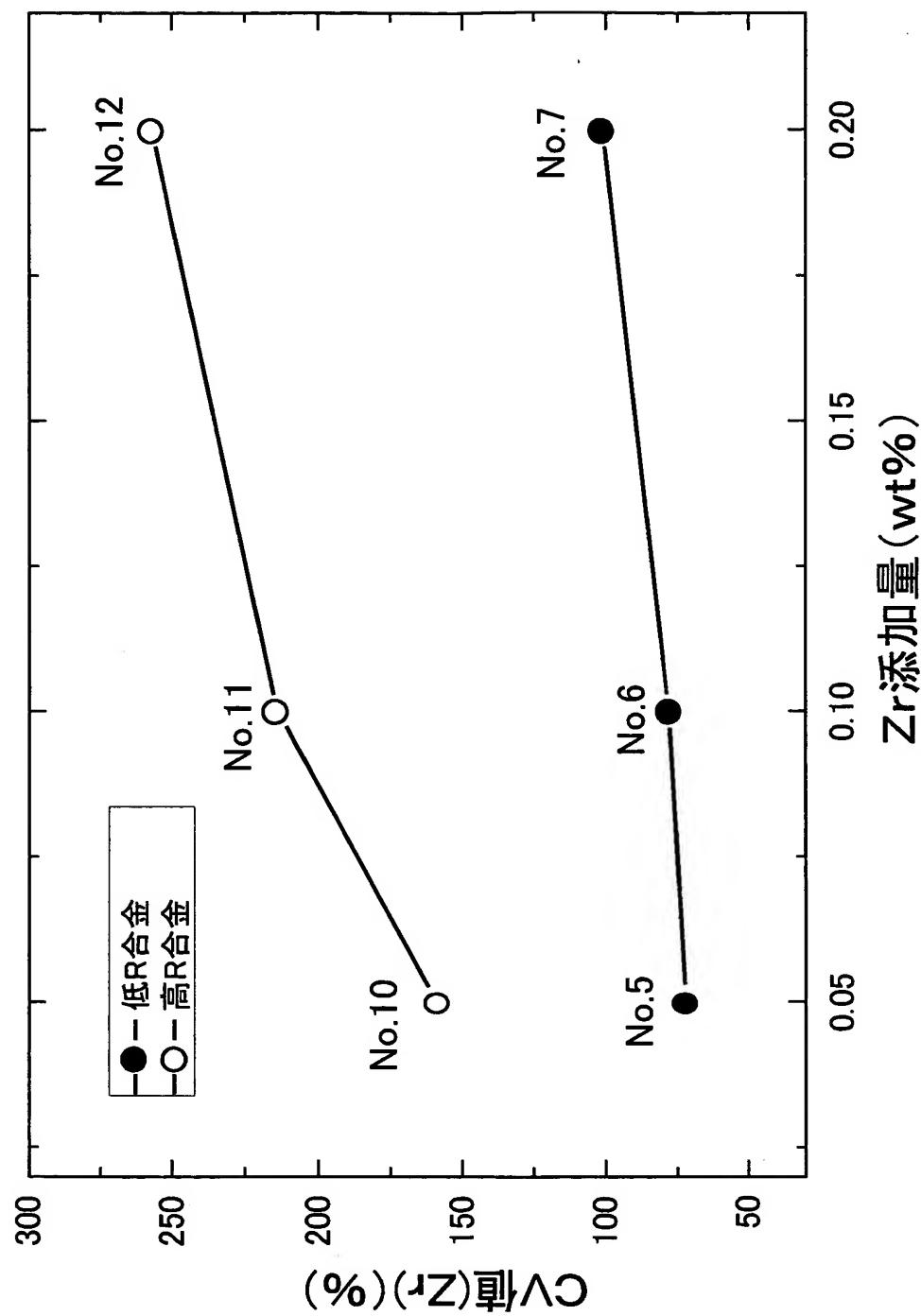


第 7 図



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第8図



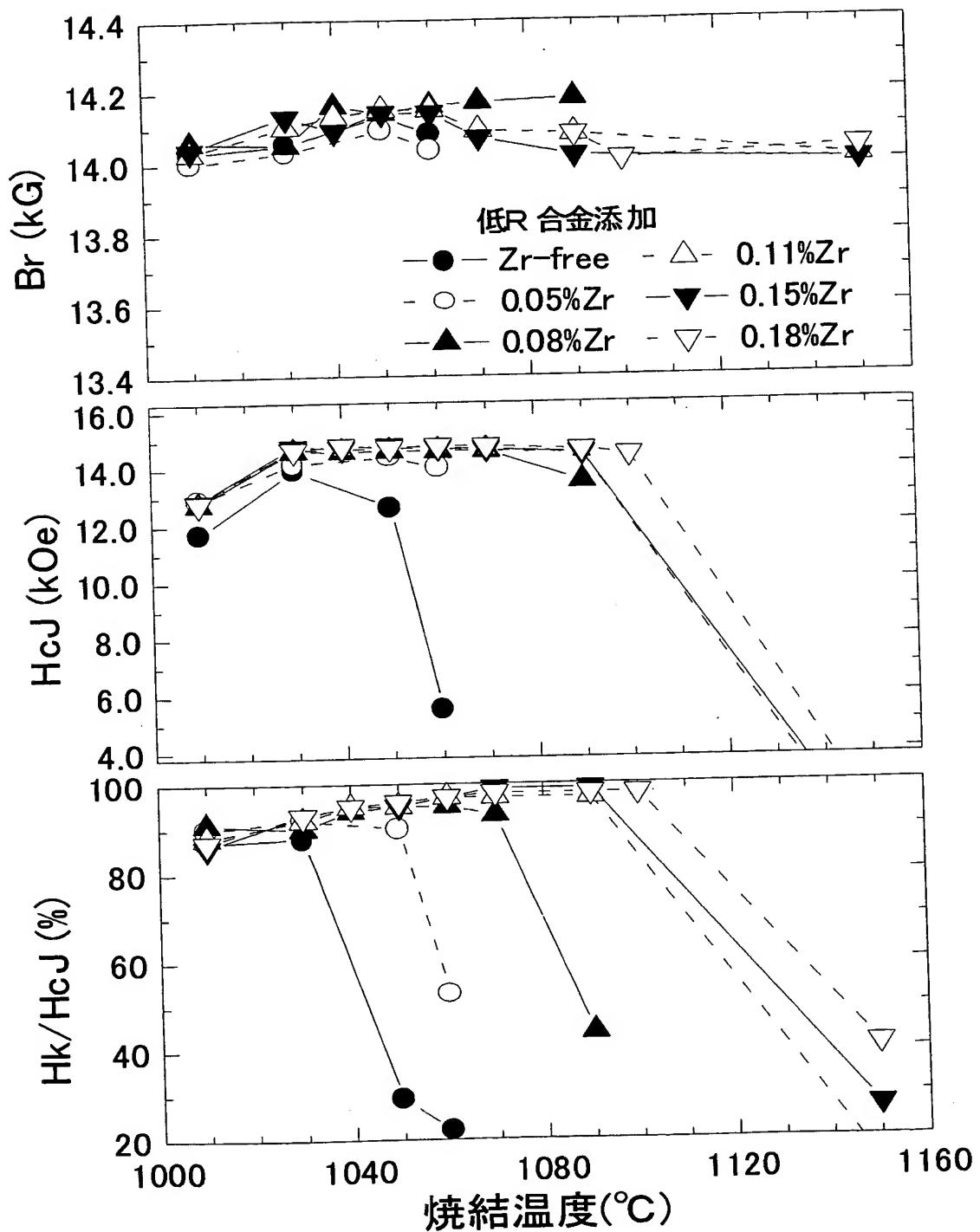
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第9図

No.	最終組成(wt. %)	酸素量(ppm)	焼結温度	Br(kG)	HcJ(kOe)	Hk/HcJ(%)	Br+0.1×HcJ	CV値
36	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co	680	1010°C	14.03	11.68	87	15.20	—
37			1030°C	14.05	13.92	88	15.44	—
38			1050°C	14.13	12.64	29	15.39	—
39			1060°C	14.08	5.53	22	14.63	—
40	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.05Zr	670	1010°C	14.00	12.84	90	15.29	—
41			1030°C	14.03	14.17	92	15.44	—
42			1050°C	14.09	14.37	90	15.53	—
43			1060°C	14.04	14.00	53	15.44	—
44	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.08Zr	870	1010°C	14.06	12.76	91	15.33	—
45			1030°C	14.05	14.61	90	15.51	—
46			1040°C	14.16	14.59	94	15.62	—
47			1050°C	14.14	14.61	95	15.60	—
48			1060°C	14.16	14.60	95	15.62	—
49			1070°C	14.17	14.60	93	15.63	—
50			1090°C	14.18	13.51	44	15.53	—
51	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.11Zr	700	1010°C	14.03	12.85	88	15.31	65
52			1030°C	14.10	14.67	92	15.57	71
53			1040°C	14.13	14.66	95	15.59	77
54			1050°C	14.15	14.71	95	15.62	75
55			1060°C	14.15	14.69	97	15.62	72
56			1070°C	14.09	14.61	97	15.55	75
57			1090°C	14.08	14.49	97	15.53	81
58			1150°C	14.01	0.11	14	14.02	142
59	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.15Zr	740	1010°C	14.04	12.85	86	15.32	68
60			1030°C	14.13	14.72	93	15.60	75
61			1040°C	14.09	14.77	95	15.57	72
62			1050°C	14.14	14.79	95	15.62	80
63			1060°C	14.14	14.72	97	15.61	85
64			1070°C	14.07	14.66	99	15.53	88
65			1090°C	14.02	14.51	99	15.47	91
66			1150°C	14.00	0.50	27	14.05	150
67			1010°C	13.98	12.81	87	15.26	—
68	Fe-24.9Nd-5.4Pr-0.4Dy-1B-0.05Cu-0.2Al-0.5Co-0.18Zr	810	1030°C	14.07	14.67	93	15.54	—
69			1040°C	14.13	14.80	95	15.61	—
70			1050°C	14.05	14.72	96	15.52	—
71			1060°C	14.18	14.78	97	15.65	—
72			1070°C	14.03	14.76	98	15.51	—
73			1090°C	14.08	14.63	98	15.54	—
74			1100°C	14.01	14.45	98	15.46	—
75			1150°C	14.04	1.75	41	14.22	—

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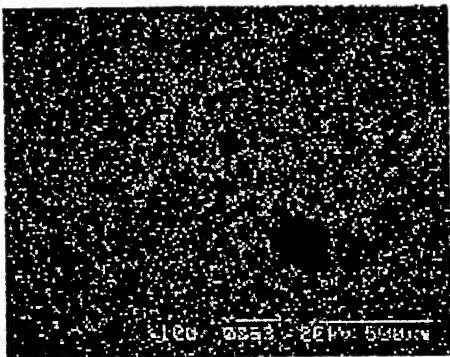
第10図



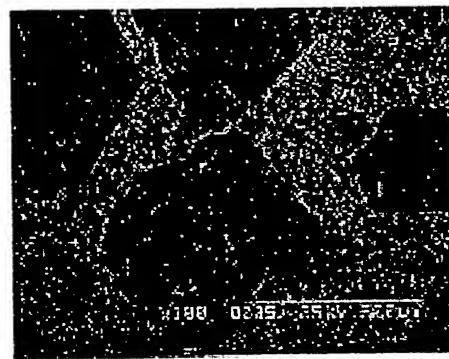
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第 1 1 図

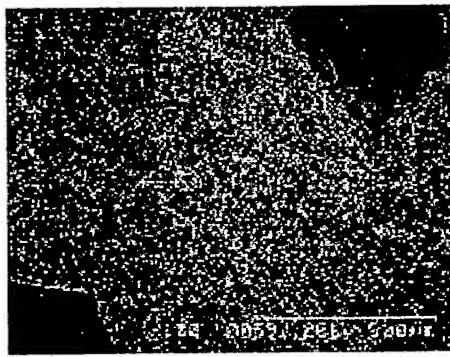
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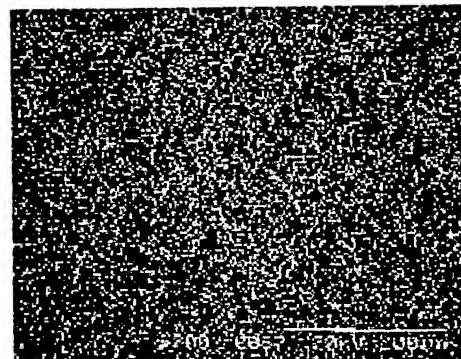
No. 39 1060°C Zr-free



No. 43 1060°C 0.05%Zr

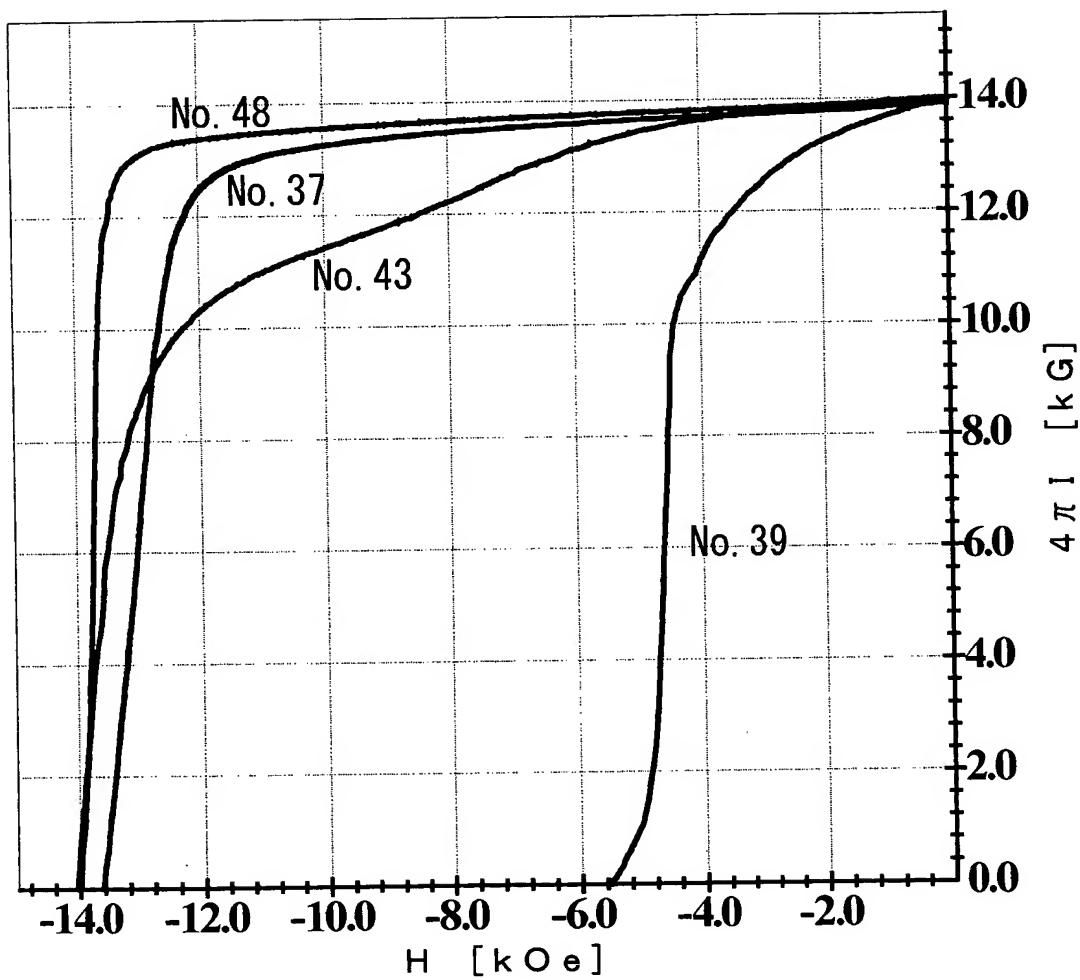


No. 48 1060°C 0.08Zr



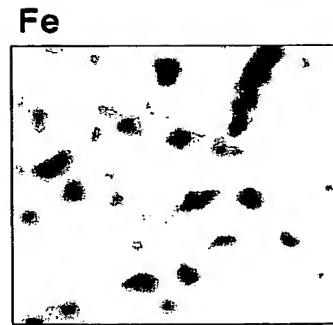
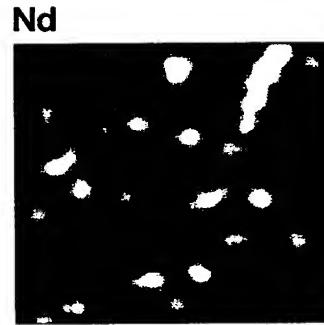
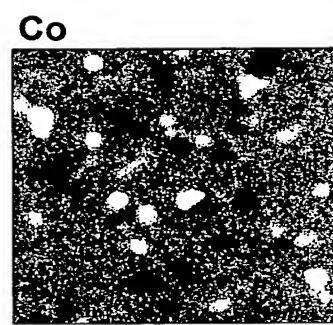
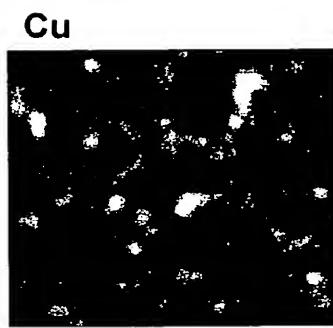
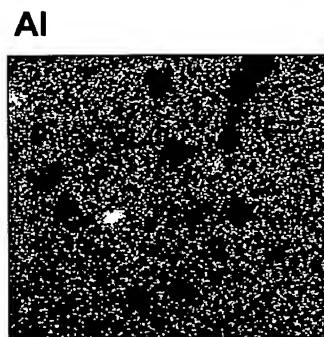
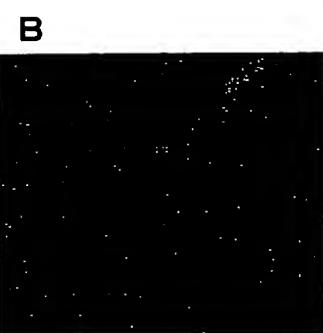
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第 1 2 図



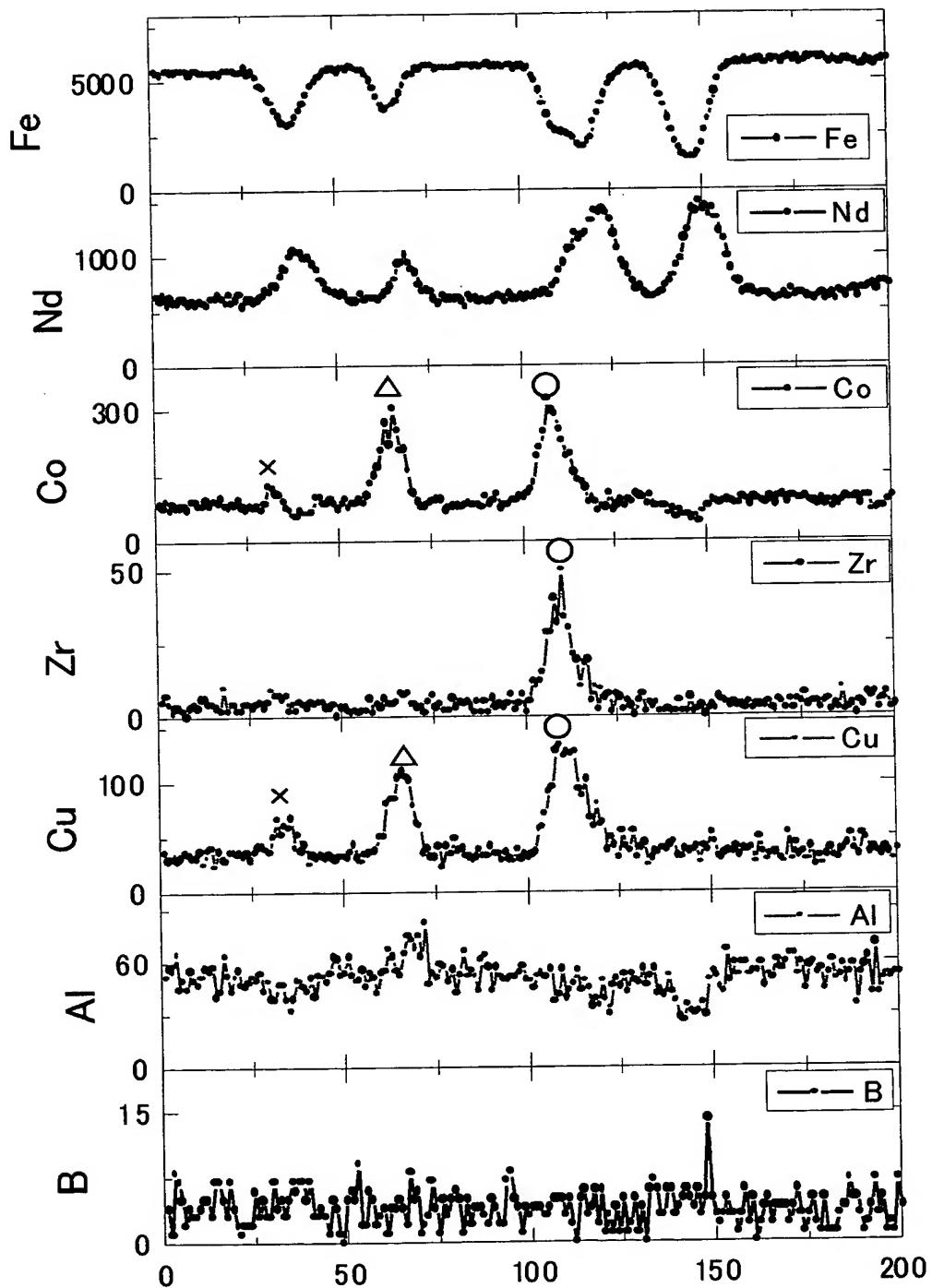
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第 13 図

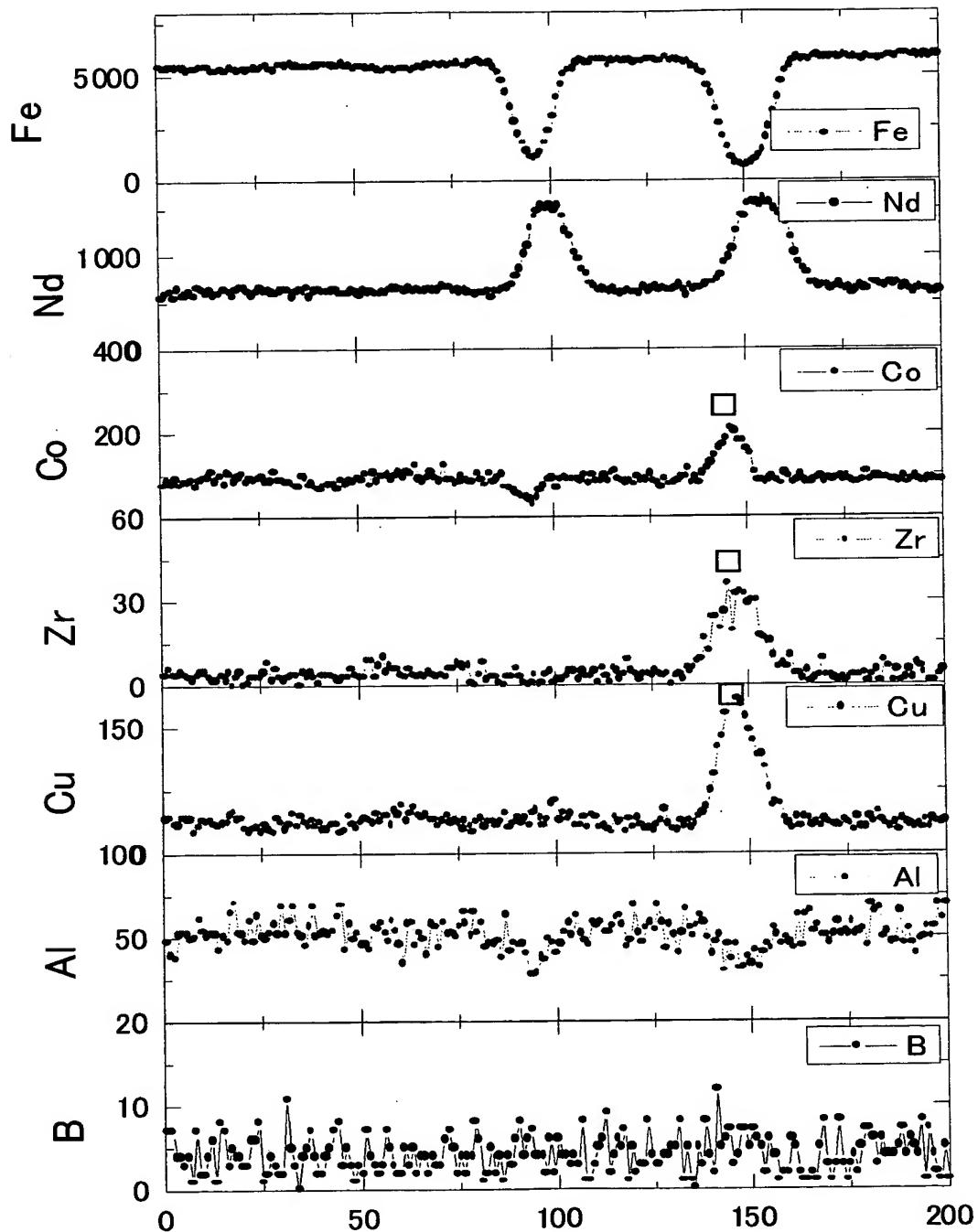


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第 1 4 図

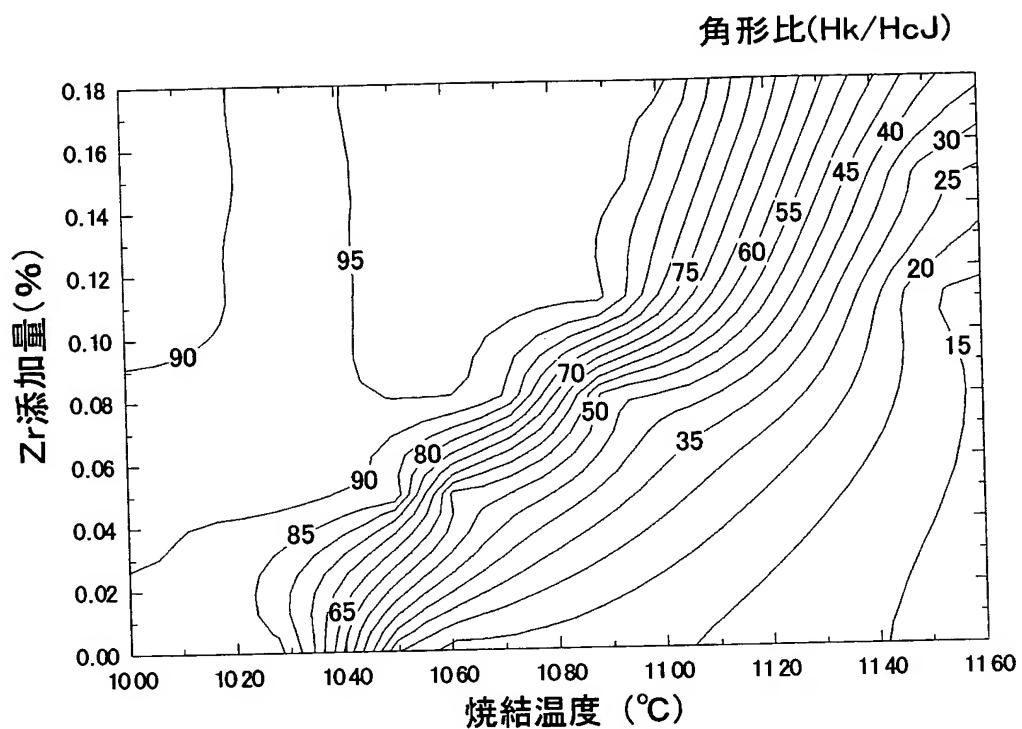


第 15 図



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第16図



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第17回

No.	最終組成(wt. %)	低R合金	高R合金	焼結温度	Br (kG)	HcJ (kOe)	Hk/HcJ (%)	Br+0.1 x HcJ
76	Fe-25.0Nd-5.3Pr-1B-0.05Cu-0.2Al-0.5Co-0.13Zr	合金a4		1060°C	14.42	12.62	98	15.68
77	Fe-23.2Nd-5.4Pr-2.1Dy-1B-0.05Cu-0.2Al-0.5Co-0.13Zr		合金b1	1070°C	13.68	17.3	97	15.41
78	Fe-20.6Nd-5.4Pr-4.7Dy-1B-0.05Cu-0.2Al-0.5Co-0.13Zr	合金a1+合金a2+合金a3			13.19	23.23	98	15.51
79	Fe-19.0Nd-5.3Pr-7.2Dy-1B-0.05Cu-0.2Al-0.5Co-0.13Zr			1090°C	12.37	30.51	94	15.42

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第18図

No.	最終組成(wt. %)	酸素量 (ppm)	低R合金	高R合金	焼結温度	Br (kG)	HcJ (kOe)	Hk/HcJ (%)	Br+0.1 x HcJ	CV値
80	Fe-28.3Nd-0.1Dy-1B-0.03Cu-0.05Al-0.2Co-0.07Zr	720	合金a7	合金b4	1070°C	14.62	13.1	98	15.93	77
81	Fe-26.9Nd-4.8Pr-0.2Dy-1.3B-0.3Cu-0.25Al-4Co-0.24Zr	980	合金a8	合金b5	1020°C	13.88	15.3	96	15.41	98